

What is claimed is:

Claim 1. In a system having a first signal which may be a video type signal and at least one second signal which may be an audio type signal the method of marking said first signal to facilitate later determination of the timing of said first signal relative to said second signal, said method including the steps of;

marking said first signal with a marker in response to the occurrence of a particular event in said second signal said marking being such that said marker is carried with said first signal during the processing which said first signal is to experience.

Claim 2. The method of determination of the timing of a first video type signal relative to its associated audio type signal after said audio type and video type signals have been processed, said method including the steps of:

- a) identifying the occurrence of a particular event in said audio type signal;
- b) in response to said occurrence of a), marking said video type signal with a marker such that said marking is carried with said video type signal for said processing which said video type signal is to experience;
- c) after said audio type signal processing, the occurrence of the same said particular event of a) in the processed version of said audio type signal is again identified;
- d) after said video type signal processing said marking of said video type signal of step b) is detected in the processed version of said video type signal;
- e) comparing the time at which said particular event is again identified in step c) to the time of said marking of said processed version of said video type signal being detected of step d) to determine the relative timing therebetween.

Claim 3. A relative delay measurement system for measuring the relative delay between a plurality of signals which experience unequal delays due to processing thereof said plurality of signals including a first signal and a second signal, said system including:

- a) a marker generator responsive to said second signal to generate a marker upon the occurrence of particular characteristics of said second signal;
- b) a marker associator responsive to said marker of a) and said first signal for marking said first signal with said marker in a fashion such that said marker will be carried with said first signal but not adversely affected by said subsequent processing;
- c) a marker separator responsive to said first signal after said subsequent processing to detect the presence of said marker therein and in response thereto generate a first delayed marker;
- d) a marker generator, which may be the same marker generator as in a), responsive to said second signal after said subsequent processing to generate a second delayed marker;
- e) a relative timing comparison responsive to said first delayed marker and said second delayed marker to determine the relative timing therebetween.

Claim 4. The invention as claimed in any of the preceding claims wherein said first signal is a video signal and said second signal is an audio signal and said video signal is to be processed in a fashion which removes the horizontal and vertical blanking portions thereof.

Claim 5. The invention as claimed in Claim 1, 2 or 3 wherein said first signal is a video signal and said second signal is an audio signal and said signals are to be transmitted in MPEG compressed form where only the active video portion of said video signal is transmitted.

Claim 6. The invention as claimed in Claim 1, 2 or 3 wherein said first signal is a television video signal and said marking includes modifying the image portion of said video signal.

Claim 7. The invention as claimed in Claim 1, 2 or 3 wherein said first signal is a television video signal and said marking includes modifying the image portion of said video signal by use of a watermarking technique.

Claim 8. In a television system where a video signal and at least one audio signal are transmitted or stored in compressed form, the method of determination the timing of said video signal relative to said audio signal after said audio signal and said video and audio signals have been compressed and subsequently decompressed, said method including the steps of:

- a) identifying the occurrence of a particular event in said audio signal prior to compression;
- b) in response to said occurrence of a), marking the image area of said video signal with a marker;
- c) after said audio signal is decompressed, the occurrence of the same said particular event of a) is again identified in the decompressed version of said audio signal;
- d) after said video signal is decompressed detecting the presence of said marker in the decompressed version of said video signal;
- e) comparing the time at which said particular event is again identified in step c) to the time of detecting the presence of said marker of step d) to determine the relative timing therebetween.

Claim 9. The method as claimed in claim 8 wherein said marking of step b) includes placing a binary number in the overscaned area of said image area.

Claim 10. The method as claimed in claim 8 wherein said marking of step b) includes encoding a binary number in said image area as a watermark.

Claim 11. The method as claimed in claim 8 wherein said event of step a) is the presence of audio signal energy within a known frequency band.



Claim 15. The method as claimed in claim 8 wherein said event of step a) comprises the occurrence of a pattern of known characteristics of said audio signal within a known period of time.

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